

Combined effect of surya namaskar and aerobic exercises to reduce anger among substance dependence subjects

Abstract

Background: There is a strong association between certain exercises and anger management. Persons with a high tendency towards anger often abuse substances. Alcohol and drug abuse is one of the most common behavioural problems that occur due to uncontrolled anger. Substance dependence subjects when frustrated would show anger. **Aim:** To assess the anger among substance dependence subjects and the effect of physical exercises (surya namaskar and aerobic exercises) on anger management. **Materials and methods:** The study was conducted at Drug De-addiction and Treatment Centre, Post Graduate Institute of Medical Education and Research, Chandigarh. Specific exercise was planned for anger management based on a thorough literature review, which consisted of surya namaskar and aerobic exercises (brisk walking and jogging) to be taught in a two-week period. **Results:** Anger was assessed by using standardised tool and after intervention for fifteen days, significant reduction in anger score was found in experimental group. **Conclusion:** Physical exercises were found to be effective for managing the anger among substance dependence subjects.

Keywords: Drug Users. State and Trait. Coping Behaviour.

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Introduction

Substance dependence is a major health concern these days.[1] Substance dependence is described as continued use of drugs, even when significant problems related to their use have developed.[2] Excessive or inappropriate ingestion of alcohol, drugs, tobacco, or other chemical or organic substances, often impairs the physiological and/or psychological functions. Substance abuse and anger is a dangerous combination. Alcohol and other drugs such as heroin or cocaine exacerbate a person's anger. Unresolved anger often leads to further use of drugs or alcohol as a way to cope with anger, which can leave an addicted man or women to increase the amount of substance when they feel angry.[3] Anger triggers the body's 'fight or flight' response. The adrenal glands flood the body with the

hormones, such as adrenaline and cortisol.[4,5] The brain shunts blood away from the gut and towards the muscles, in preparation for physical exertion. Heart rate, blood pressure, and respiration increase, the body temperature rises, and the skin perspires.[5,6] Experiences of anger are conceptualised as having two major components: State and trait anger. State anger is defined as a psychological emotional state marked by subjective feelings that vary in intensity from mild irritation to intense fury and rage. Trait anger is defined in terms of individual differences in disposition to perceive a wide range of situations as frustrating and by the tendency to respond to such situations with elevation in state anger.[7-9] Researcher has evaluated the differences in the experience, expression, and control of anger for drug addicted and a control group of nondrug users. Drug abusers had significantly higher scores

on the State-Trait Anger Expression Inventory (STAXI)-State and Trait anger scales.[10]

Managing anger has always been a concern for subjects suffering from substance dependence. For substance abuse, exercise is a quite new and promising treatment option. Physical exercise can be used both as early prevention, and as part of a continuous treatment process among substance dependence subjects.[11-14] Researchers have found beneficial impact of exercise as a treatment for the abuse of nicotine, alcohol, and other substances.[15]

Since time is often seen as a limiting factor when exercising, a daily practice of surya namaskar is the perfect solution for time-challenged individuals.[16] A study carried on the effect of yoga therapy on rehabilitation of drug addicts found that yoga therapy improved self-confidence and the optimistic attitude was helpful for their rehabilitation.[17] Another study was also conducted to assess the effect of surya namaskar on anger management and the sample was divided into two groups, experimental and control. Intervention was given only in experimental group during the training programme of six weeks. Anger scores in pre and post intervention period, were measured using STAXI, and it was shown that there was a reduction in anger score after the training period in the experimental group when compared to the control group.[18] Gupta and Malik[19] observed significant differences in patients with different mental disorders on perceived stress and general health scores using sudarshan kriya yoga as an adjunctive treatment.

With the above background, the present study aimed to assess the anger among substance dependence subjects and the effect of physical exercises (surya namaskar and aerobic exercises) on anger management.

Material and methods

Place of the study: The place of study was Drug De-addiction and Treatment Centre (DDTC), Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh, India.

Period of study: The period of data collection was from 16 July to 1 October 2014.

Selection of study sample: Purposive sampling technique was used. Sixty subjects were involved (30 in experimental group and 30 in control group). All the subjects were male in the present study.

Inclusion criteria: Subjects with substance dependence disorder, subjects who can understand English or Hindi, and subjects admitted in DDTC ward at the time of data collection were included.

Exclusion criteria: Subjects with psychotic disorder, severe withdrawal symptoms, and any physical disability were not included.

Informed consent: An informed consent was taken from each of the subjects included in the study.

Ethical consideration: The study was cleared by the ethical committee of the institution.

Materials and tools used

1. Socio-demographic proforma: It was prepared in the department for collecting information on socio-demographic variables (age, gender, marital status, educational status, occupation, habitat, type of family, and family members).

2. Anger assessment scale: For assessing the anger, STAXI-2™ (developed by Spielberger in 1999) was used.[9] STAXI-2™ is a self-report inventory that measures anger in multiple dimensions. By responding to 57 items on a four-point scale (with one equating to “not at all” or “almost never” and four equating to “very much so” or “almost always”), assessment of the subjects’ anger was done.

3. Protocol for physical exercises: Protocol for physical exercises (Surya namaskar and aerobic exercises) was developed.

Validity of research tools and protocol: The tools were given to a team of experts from the fields of Nursing, Psychiatry, and Psychology to check for their content relevance, clarity, sequence, format, and comprehensiveness. Subjects’ consent form and STAXI-2™ was translated into Hindi and then re-translated to English, and Hindi version was validated by the experts in the Hindi language.

Statistical analysis of data: Primary data were analysed by descriptive statistics and by hypothesis testing methods, using statistical software, Statistical Package for Social Sciences (SPSS version 16.0 Inc., Chicago, IL).

The following descriptive methods were used: Measures of central tendency (mean, median), variability measures (standard deviation).

The following hypothesis testing methods were employed: Chi square test, analysis of covariance (ANCOVA). The probability threshold of null hypothesis was set at 0.05.

Results

The study enrolled 60 subjects. As per the socio-demographic data summarised in Table 1, the mean age of subjects in the experimental group and control group was 33.67 ± 8.73 and 32.43 ± 9.02 years respectively, and was comparable as per age and range varied from 20-49 years in both the groups. All the subjects in both the groups were male. On the basis of socio-demographic characteristics, both the groups were found to be homogenous in nature in terms of age, gender, marital status, educational status, occupational status, habitat, type of family, and number of family members (p value > 0.05).

ANCOVA was applied to assess the effect of physical exercises on anger management among substance dependence subjects. It was found that there was significant difference ($p < 0.05$) in the reduction in the anger scores in the experimental group (Table 2).

Discussion

Present study was undertaken with an objective to assess the effect of physical exercises on anger management among substance dependence subjects. The study was conducted in DDTC of PGIMER, Chandigarh.

In the present study, intervention was given in the experimental group in the form of physical exercises, twice

Table 1: Socio-demographic profile of subjects (N=60)

Socio-demographic characters	Experimental group n ₁ (%)=30	Control group n ₂ (%)=30	χ ² df p value
Age (years)			
20-29	9 (30)	13 (43.3)	1.30
30-39	11 (36.7)	10 (33.3)	2
40-49	10 (33.3)	7 (23.3)	0.52
Gender			
Male	30 (100)	30 (100)	NA*
Marital status			1.15
Unmarried	9 (30)	13 (43.3)	1
Married	21 (70)	17 (56.7)	0.28
Educational status			
Up to 10 th	10 (33.3)	10 (33.33)	4.91
10 +2 & diploma	7 (23.33)	14 (46.67)	2
Graduate & above	13 (43.33)	6 (20)	0.08
Occupation			
Professional	7 (23.3)	4 (13.3)	1.006
Skilled	17 (56.7)	19 (63.3)	2
Unemployed	6 (20)	7 (23.3)	0.61
Habitat			1.15
Urban	21 (70)	17 (56.7)	1
Rural	9 (30)	13 (43.3)	0.25
Type of family			0.693
Nuclear	22 (73.3)	19 (63.3)	1
Joint	8 (26.7)	11 (36.7)	0.41
Family members			0.089
Up to 6	22 (73.3)	23 (76.7)	1
7-12	8 (26.7)	7 (23.3)	0.77

*Not applicable/computed as value is constant in both the groups

a day, for fifteen days. Physical exercises included: Surya namaskar and aerobic exercise, i.e. brisk walking and jogging. Researcher gave the instructions to the participants about how to perform aerobic exercises and surya namaskar and after giving instructions participants were followed up by the researcher.

The present study has shown that physical exercises were effective measure for managing the anger among substance dependence subjects. By implementing physical exercises in the experimental group, there was significant reduction in anger scoring whereas this was not so in control group after fifteen days.

In the study conducted by Prochaska *et al.*,[20] increases in physical exercises were associated with a greater likelihood of sustained abstinence from smoking, while relapse to smoking was associated with decline in activity. The findings are consistent with a recent prospective seven-year observational study with 750 Japanese men in which increased habitual exercise was associated with smoking cessation, while smoking relapse was associated with reduced habitual exercise.[21]

In the study conducted by Senthil Kumar *et al.*[18] on the effect of surya namaskar on anger management, pre and post training session anger scores were measured using STAXI. There was a reduction in anger score after the training period in the experimental groups. In another study,[17] researchers investigated the effect of yoga therapy on rehabilitation of drug addicts and it was found that yoga therapy improved self-confidence and optimistic attitude was helpful for their rehabilitation.

In the present study, physical exercises performed by the substance dependence subjects during their admission period in DDTC, helped in management of anger in the experimental group. Although there was reduction in the mean score of state anger in both the groups but it was not statistically significant difference in the reduction of state anger in both the groups in the post interventional assessment phase. On the other hand, reduction in the mean score of trait anger is greater in experimental group as compared to the control group. Similarly in the anger expression index reduction is greater in experimental group as compared to control group. However,

Table 2: Comparison of anger scores between experimental and control groups in post interventional phase (N=60)

Characteristics	Mean±SE		Mean square	F value	df	p value
	Experimental group (n ₁ =30)	Control group (n ₂ =30)				
State anger						
Feeling angry	5.06±0.14	5.84±0.14	7.42	13.61	1	0.001
Feel like expressing anger verbally	5.00±0.00	5.00±0.00	0.00	NA*	1	NA*
Feel like expressing anger physically	5.00±0.00	5.00±0.00	0.00	NA*	1	NA*
State anger (total)	15.05±0.15	15.85±0.15	7.96	13.25	1	0.001
Trait anger						
Angry temperament	4.34±0.18	9.55±0.18	324.18	378.95	1	<0.001
Angry reaction	6.63±0.28	17.31±0.28	1373.25	673.67	1	<0.001
Trait anger (total)	11.07±0.42	26.82±0.42	2972.83	643.23	1	<0.001

*Not applicable/computed as standard error of difference is 0

reduction in the mean score of anger had also been found in the control group. This could be attributed that control group was not completely deprived of any intervention except physical exercises. They did receive the verbal motivation, prescribed drugs, and other form of treatment like psychotherapy and this could have possibly brought the anger management among subjects of the control group.

Physical exercises resulted in statistically significant reduction in anger scores and in anger management among substance dependence subjects of experimental group (p value <0.001). Hence the null hypothesis was rejected and alternative hypothesis was accepted. Thus researchers conclude that physical exercises significantly helped in controlling the anger among substance dependence subjects.

Limitations

Other confounding variables like routine psychiatric/medical/nursing care and other treatment plans like psychotherapy were not controlled in control group as control group was not completely deprived of any intervention except physical exercises.

Future implications

Mental health professionals can use this protocol in their routine practice, to manage the anger among substance dependence subjects. However, more such studies can be conducted on large samples, different setting and for longer duration to support these findings.

Conclusion

Substance dependence subjects are using alcohol and other substances as a way of coping mechanism to manage the anger. Researchers implemented physical exercises (surya namaskar and aerobic exercises) as a way of coping mechanism in order to manage the anger among substance dependence subjects in experimental group.

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